

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of transmitting data using multi-carrier Code-Division Multiple Access (CDMA) for accessing a transmission system, the method comprising the acts of:
modulating the data to be transmitted using Orthogonal Frequency-Division Multiplexing (OFDM) for producing OFDM modulated data symbols; and

spreading the OFDM modulated data symbols with spreading codes including a set of predefined sequences that satisfy predetermined auto-correlation and/or cross-correlation criteria within a region around a central point of an Interference-Free Window (IFW), wherein a length of the IFW is greater than a channel delay spread of a transmission channel including a set of multi-paths with

associated time lengths, the ~~transmission channel having a channel~~ delay spread ~~defined as~~ being a time length corresponding to an estimate of a difference between the time lengths of at least two different multi-paths.

2. (Previously Presented) The method as claimed in claim 1, wherein the transmission system comprises a transmitter, a receiver and a transmission channel, for transmitting the data from the transmitter to the receiver via the transmission channel, the length of the Interference-Free Window (IFW) depending on the channel delay spread.

3. (Previously Presented) The method as claimed in claim 1, wherein the sequences are such that their off-peak partial autocorrelation and partial cross-correlation values are zero within the Interference-Free Window (IFW).

4. (Previously Presented) The method as claimed in claim 2, wherein the sequences are such that they comprise zero gaps.

5. (Currently Amended) A transmitter for transmitting data using multi-carrier Code-Division Multiple Access (CDMA) for accessing a transmission system, the transmitter comprising:

a modulator for modulating the data to be transmitted using Orthogonal Frequency-Division Multiplexing (OFDM) for producing OFDM modulated data symbols; and

a mixer for spreading the OFDM modulated data symbols with spreading codes including a set of predefined sequences, wherein the sequences are predefined so that they satisfy predetermined auto-correlation and/or cross-correlation criteria within a region around a central point of an Interference-Free Window (IFW), wherein a length of the IFW is greater than a channel delay spread of a transmission channel including a set of multi-paths with associated time lengths, the ~~transmission channel having a channel delay spread defined as being~~ a time length corresponding to an estimate of a difference between the time lengths of at least two different multi-paths.

6. (Currently Amended) A method of receiving multi-carrier data sequences transmitted via a transmission system using multi-carrier Code-Division Multiple Access (CDMA) for accessing the transmission system, the data sequences being OFDM modulated before being spread with a set of predefined sequences satisfying predetermined auto-correlation and/or cross-correlation criteria within a region around a central point of an Interference Free Window (IFW), the method comprising a step of demodulating the received multi-carrier data sequences with respect to a predefined set of sub-carriers and with respect to the set of predefined data sequences, wherein a length of the IFW is greater than a channel delay spread of a transmission channel including a set of multi-paths with associated time lengths, the ~~transmission channel having a channel delay spread defined as being~~ a time length corresponding to an estimate of a difference between the time lengths of at least two different multi-paths.

7. (Currently Amended) A receiver for receiving data sequences transmitted via a transmission system using multi-carrier Code-

Division Multiple Access (CDMA) for accessing the transmission system, the data sequences being OFDM modulated before being spread with a set of predefined sequences satisfying predetermined auto-correlation and/or cross-correlation criteria within a region around a central point of an Interference-Free Window (IFW), the receiver comprising a set of rake combiners tuned to associated sub-carriers for demodulating the received data sequences, wherein a length of the IFW is greater than a channel delay spread of a transmission channel including a set of multi-paths with associated time lengths, the ~~transmission channel having a~~ channel delay spread ~~defined as being~~ a time length corresponding to an estimate of a difference between the time lengths of at least two different multi-paths.

8. (Previously Presented) A computer readable medium embodying a computer program product including a set of instructions, which when loaded in a transmitter, causes the transmitter to carry out the method as claimed in claim 1.

9. (Previously Presented) A computer readable medium embodying a computer program product including a set of instructions, which when loaded in a receiver, causes the receiver to carry out the method as claimed in claim 6.

10. (Currently Amended) A system comprising at least a transmitter and a receiver for transmitting data from the transmitter to the receiver using multi-carrier Code-Division Multiple Access (CDMA) for enabling the transmitter to access the transmission system, the data to be transmitted being modulated using Orthogonal Frequency-Division Multiplexing (OFDM) before being spread with a set of predefined sequences wherein the sequences are predefined so that they satisfy predetermined auto-correlation and/or cross-correlation criteria within a region around a central point of an Interference-Free Window (IFW), wherein a length of the IFW is greater than a channel delay spread of a transmission channel including a set of multi-paths with associated time lengths, the ~~transmission channel having a channel delay spread defined as being~~ a time length corresponding to an

estimate of a difference between the time lengths of at least two different multi-paths.

11. (Previously Presented) The method of claim 1, wherein the at least two different multi-paths include a longest path having a maximum length and a shortest path having a minimum length.

12. (Previously Presented) The transmitter of claim 5, wherein the at least two different multi-paths include a longest path having a maximum length and a shortest path having a minimum length.

13. (Previously Presented) The method of claim 6, wherein the at least two different multi-paths include a longest path having a maximum length and a shortest path having a minimum length.

14. (Previously Presented) The receiver of claim 7, wherein the at least two different multi-paths include a longest path having a maximum length and a shortest path having a minimum

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length.

15. (Previously Presented) The system of claim 10, wherein the at least two different multi-paths include a longest path having a maximum length and a shortest path having a minimum length.